

Guide to Interpretation of West Nile Virus Serology Results

Serology is the recommended method of testing for WNV in both serum and Cerebral Spinal Fluid (CSF), as viremia (as detected by PCR) is very transient. To aid in interpretation of test results, the most important piece of information to obtain is the DATE OF ONSET of illness. Laboratory results are then used in conjunction with the patient's clinical information to determine the presence or absence of disease.

ACUTE SERUM SPECIMEN

Defined as a serum specimen drawn 8 days or less from the Date of Onset of illness.

IgM Serology

- ✓ IgM Antibodies have been detected as early as day 1 post onset
- ✓ A **Positive** result is consistent with recent West Nile Virus infection if the patient has a clinically compatible illness.
- ✓ A **Negative** result provides no serologic evidence for infection with WNV, however the specimen may have been drawn prior to the production of significant antibodies, and a second (convalescent) specimen should be submitted if active disease is suspected
- ✓ An **Equivocal** result is a borderline reactive result, and may be suggestive of infection. However, IgM serum antibodies can persist for more than 1 year, so this may also indicate an infection from last year. A second (convalescent) serum specimen may be indicated, and both IgM and IgG testing performed to resolve the infection status of the patient

IgG Serology

- ✓ Acute IgG antibody testing has limited value. Acute Only IgG testing (a single acute specimen without a convalescent serum) is not performed at the Montana Public Health Laboratory (MTPHL)

CONVALESCENT SERUM SPECIMEN

Defined as a serum specimen drawn 9 or more days post Date of Onset of illness

IgM Serology

- ✓ A **Negative** result provides no serologic evidence for infection with WNV
- ✓ A **Positive** result is consistent with recent West Nile Virus infection if the patient has a clinically compatible illness.
- ✓ An **Equivocal** result is a borderline reactive result, suggestive of infection. However, IgM serum antibodies can persist for more than 1 year, so this may also indicate an infection from last year.
- ✓ For testing performed at the MTPHL, an Equivocal specimen will automatically be reflexed to West Nile Virus IgG testing and screened for St Louis Encephalitis (SLE) antibodies. SLE is known to cross react with West Nile Virus, and can co-circulate with WNV.

IgG Serology

- ✓ Paired acute and convalescent specimens are recommended
- ✓ Negative results on both acute and convalescent specimens provide no serologic evidence for infection with WNV
- ✓ A Negative acute IgG result and a Positive convalescent IgG result is consistent with recent infection with WNV if the patient has a clinically compatible illness.
- ✓ On a single specimen, a Negative IgM result and a Positive IgG result is consistent with previous infection with WNV at an undetermined time

CEREBRAL SPINAL FLUID (CSF)

Usually collected during the acute phase of illness

IgM Serology

- ✓ IgM does not persist in CSF as it does in serum. Detection of IgM in CSF is an indicator of a recent infection with West Nile Virus.

IgG Serology

- ✓ Not indicated

Results obtained from commercial laboratories may be difficult to interpret. A specimen submitted to the MTPHL with date of onset may be tested to help resolve infection status.

Feel free to contact the MT Public Health Laboratory at 800-821-7284 for assistance in test interpretation.